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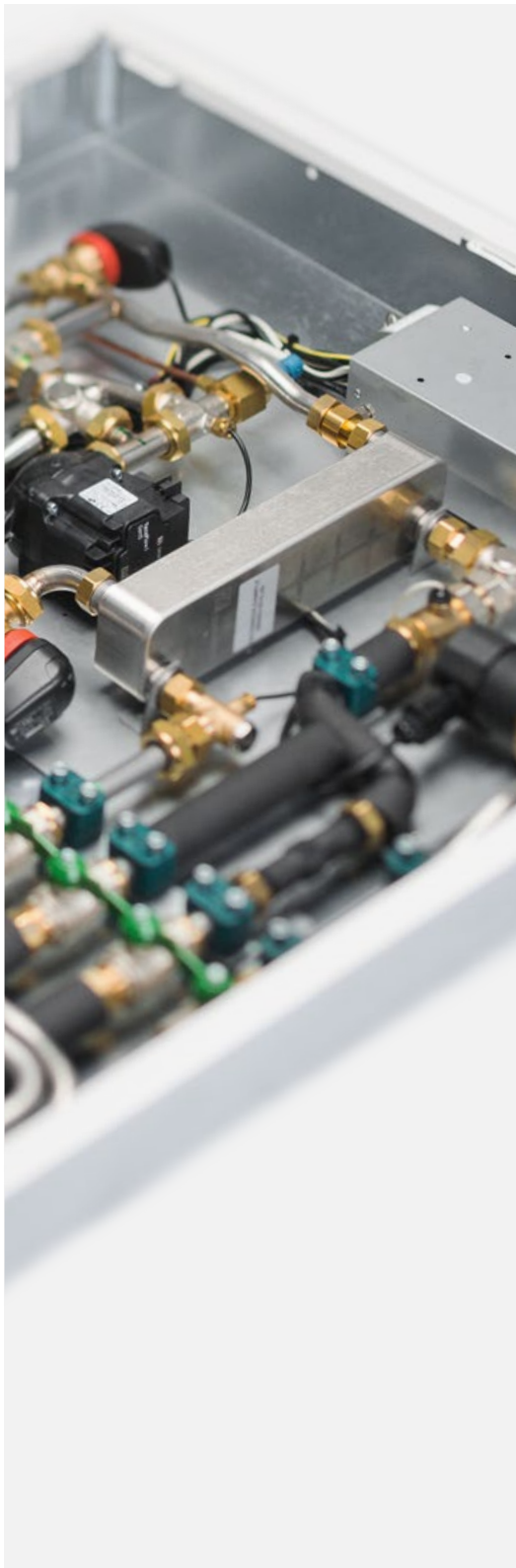


TACOTHERM DUAL

DECENTRALISED DOMESTIC HOT WATER TECHNOLOGY

WHAT DOES TACONOVA STAND FOR?

Taconova Group AG is a well-established Swiss company with over 60 years of experience in providing intelligent building services solutions.

Experience
- More than 60 years of experience in providing building services solutions
- Development, manufacture and distribution of products and systems from one source
- Experience and innovative strength for maximum customer benefit

Expertise
- Our team of experts is on hand to answer your questions and will be pleased to help with the design of your own systems

Versatility
- From boiler room to roof: high quality, innovative systems and products in the areas of:
  - hydronic balancing
  - area heating systems
  - system technology
  - valves and accessories
  - pump technology

Quality
- Premium quality at the highest level, manufactured in compliance with both Swiss and international standards
- High quality materials and excellent product workmanship
- Durable, low-maintenance components developed in Switzerland

REFERENCES

Taconova heat interface units are used in both new builds and modernisation projects.

Our decentralised domestic hot water technology is used in a wide variety of applications, ranging from apartment blocks and multi-family housing developments through to public buildings and sports halls.

For further details, please visit our website **www.taconova.com** or email us at: info@taconova.com

Living East, Erlangen DE

WHAT DO INTERNATIONAL STANDARDS SAY ABOUT DOMESTIC HOT WATER TECHNOLOGY?

Many European standards call for a reduction in the amount of DHW stored and the heating up only of the quantity actually required.
Different countries have different regulations in relation to drinking water quality:

DIN 1988-200 (9.7.2.7)
"With regard to DHW hygiene, it is recommended not to store large amounts of DHW and not to stock alternative heat in preheating stages, but rather in a heating water buffer cylinder for the sake of higher effectiveness, among other reasons."

Energy should be stored in the heating water and NOT in DHW!

DVGW W551 (5.2.1)
Decentralised instantaneous DHW heaters can be used without additional measures if the output volume downstream of instantaneous DHW heater does not exceed 3 litres.

SIA 385/1 (3.2.6)
"The quantity of DHW to be stored shall be kept to a low level.
SIA 385/2 rules shall be applied."

Minimised hygiene risk and monitoring with decentralised DHW heating.

ÖNORM B 5019:2011 (5.7.3 and 5.8.3)
"Systems for heating DHW should be designed in as small a size as possible in line with engineering standards as per ÖNORM H 5151-1 to cover the demand for DHW.
5.7.3 and 5.8.3: During construction, instantaneous DHW heaters should ideally be used."

HOW DO HEAT INTERFACE UNITS WORK?

Heat interface units (HIU) control heat distribution and DHW heating for apartments. They supply hygienic DHW as needed, without the need for a DHW cylinder.

Concept
In the domestic hot water module of a heat interface unit, DHW is heated up at the time of draw-off using the instantaneous water heating principle. The energy for on-demand DHW heating is drawn from the heating water in a buffer cylinder.

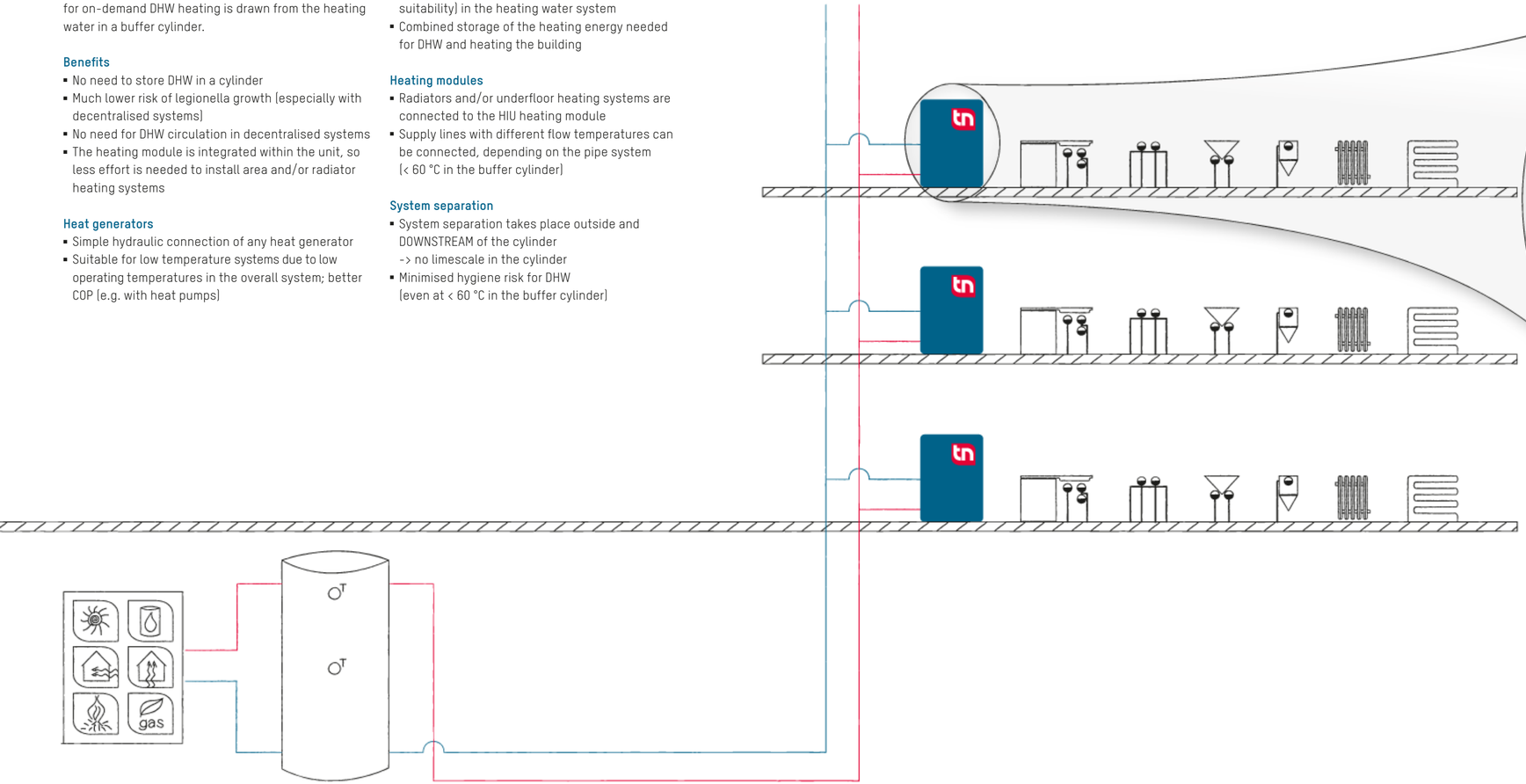
Benefits
- No need to store DHW in a cylinder
- Much lower risk of legionella growth (especially with decentralised systems)
- No need for DHW circulation in decentralised systems
- The heating module is integrated within the unit, so less effort is needed to install area and/or radiator heating systems

Heat generators
- Simple hydraulic connection of any heat generator
- Suitable for low temperature systems due to low operating temperatures in the overall system; better COP (e.g. with heat pumps)

Buffer cylinders
- No further components need be installed in the buffer cylinder to store energy
- Inexpensive materials (without drinking water suitability) in the heating water system
- Combined storage of the heating energy needed for DHW and heating the building

Heating modules
- Radiators and/or underfloor heating systems are connected to the HIU heating module
- Supply lines with different flow temperatures can be connected, depending on the pipe system (< 60 °C in the buffer cylinder)

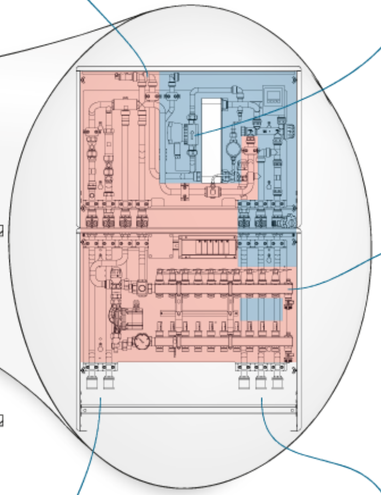
System separation
- System separation takes place outside and DOWNSTREAM of the cylinder
  -> no limescale in the cylinder
- Minimised hygiene risk for DHW (even at < 60 °C in the buffer cylinder)



WHAT DO HEAT INTERFACE UNITS CONTAIN?

The units combine domestic hot water modules for DHW heating and heating modules for heat distribution to apartments.

HEAT INTERFACE UNIT CONNECTION OPTIONS



Radiator heating connection
Additional connections for connecting radiators in the high temperature range

DHW circulation connection
Optional DHW circulation system for more distant draw-off points

Area heating connection
Pre-assembled area heating distributor which also enables the connection of, for example, bathroom radiators in a low temperature system

Central heat supply connections
The available system temperatures in the buffer cylinder determine how the units are connected:
- with high temperature flow (2-pipe system) or
- high and low temperature flow (3 or 4-pipe system)

Energy consumption is recorded for each residential unit.

Drinking water supply and distribution connections
Drinking water is distributed throughout the entire building in pipes that are not kept warm, which prevents the growth of legionella.
Decentralised use of a DHW circulation network is required in exceptional cases only.

Decentralised heat distribution and billing

Number of drinking water pipes kept warm is minimised

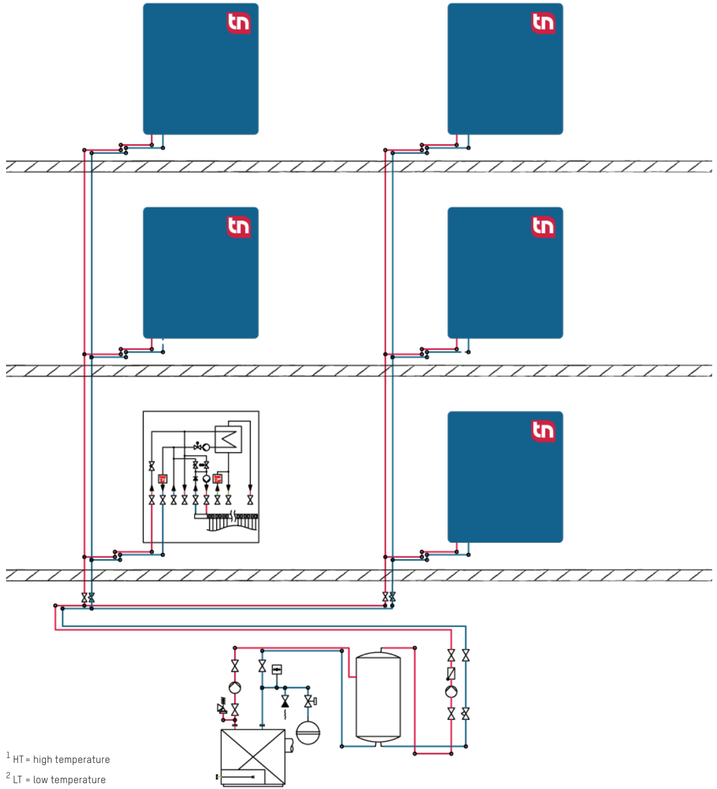
DIAGRAM OF A 2-PIPE SYSTEM

2-pipe primary (heating) and 1-pipe secondary (sanitation)

For systems/heat generators with flow temperatures of 60 °C and above

The 2-pipe system consists of:

1. Heating: return HT[1] (from the domestic hot water and heating modules)
2. Heating: flow HT (to the domestic hot water and heating modules)
3. Sanitation: cold water supply line (not shown)



[1] HT = high temperature

[2] LT = low temperature

DIAGRAM OF A 3-PIPE SYSTEM

3-pipe primary (heating) and 1-pipe secondary (sanitation) – only available with PM version

For systems with different flow temperatures for heating and DHW heating

The 3-pipe system consists of:

1. Heating: shared return HT[1] / LT[2]
2. Heating: flow HT (to the domestic hot water module)
3. Heating: flow LT (to the underfloor heating module)
4. Sanitation: cold water supply line (not shown)

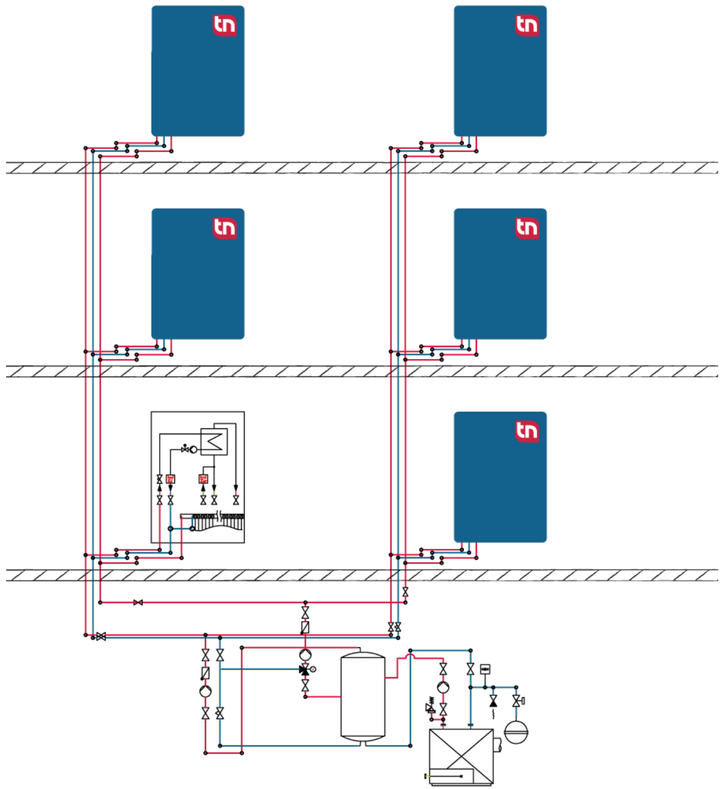


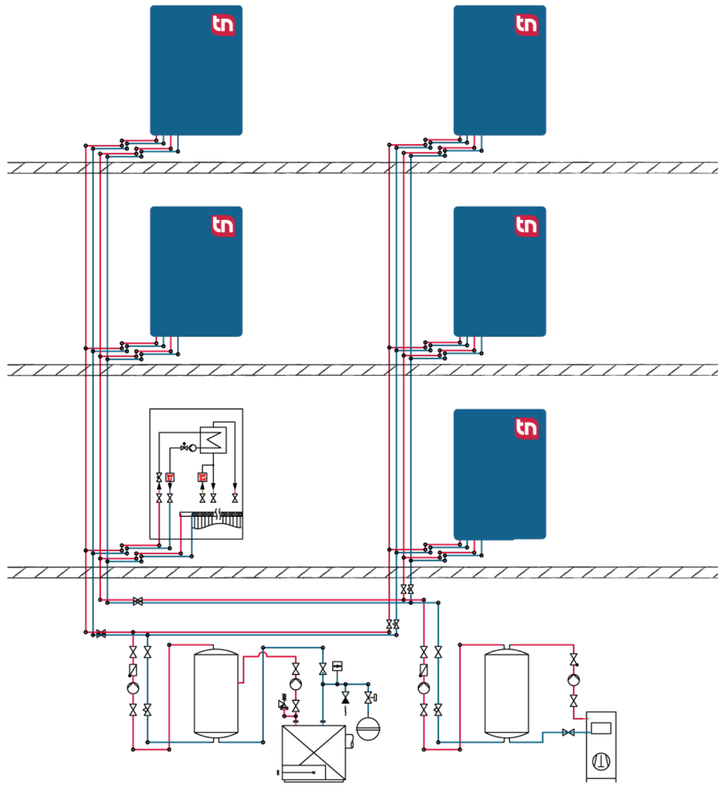
DIAGRAM OF A 4-PIPE SYSTEM

For systems with different flow temperatures for heating/cooling and DHW heating

For high temperature differences in the return (e.g. area cooling)

The 4-pipe system consists of:

1. Heating: return HT[1] (from the domestic hot water module)
2. Heating: flow HT (to the domestic hot water module)
3. Heating: flow LT[2] – underfloor heating
4. Heating: return – heating
5. Sanitation: cold water supply line



CONFIGURATION IN SIX STEPS

The six main steps when configuring a heat interface unit.

Manual configuration

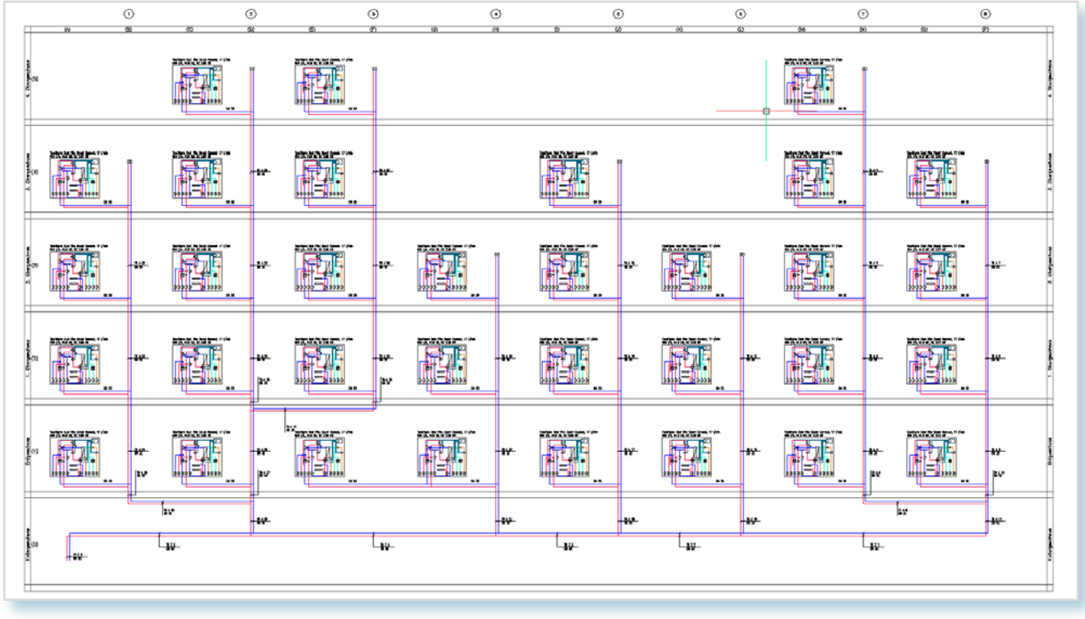
1. Determine the residential unit's DHW output and draw-off temperature.
2. Size and select the domestic hot water module based on the maximum possible primary flow temperature (heat generator).
3. Determine the residential unit's heat demand and number of heating circuits.
4. Configure the primary pipework and nature of the distribution (2-4 pipe system).
5. Use the building heating load, DHW demand and type of heat generator to determine the size of the buffer cylinder(s).
6. Determine possible options:
   - DHW circulation
   - warming module
   - fixed value or weather-compensated control

Configuration with electronic assistance

To make configuration as quick and easy as possible, all data and options for the TacoTherm Dual heat interface unit are stored in the "CADprofi" engineering software, which supports you every step of the way (see: cadprofi.com).

There are a number of benefits to using the software:

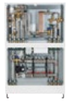
- use of the BIM process
- transfer of the building heating load calculation
- product selection wizard for heat interface units
- quick and simple design planning with diagram generator
- 3D implementation planning with 3D objects
- heating pipework calculation
- DHW pipework calculation
- sizing of the heating buffer cylinder



TACOTHERM DUAL HEAT INTERFACE UNIT PRODUCT OVERVIEW

Flexible design of the DHW demand by extending the output of individual units.

TacoTherm Dual Piko (slimline design: installed depth of 110 mm)

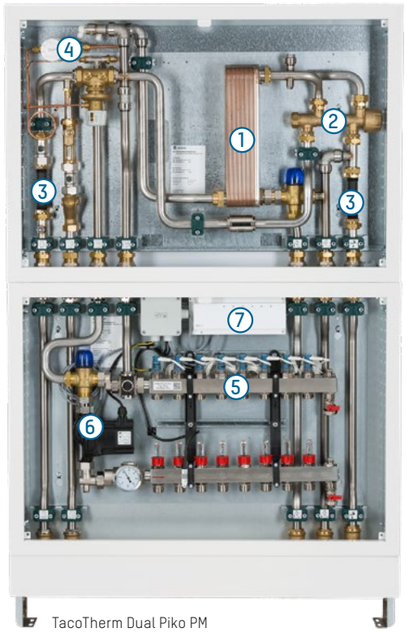
Unit/type		Nominal draw-off/ heating circuits	Design
	**TacoTherm Dual Piko PM** Combi unit	22 l/min* Up to 10 heating circuits	▪ Compact, combined and connection-ready heat interface unit ▪ Fresh hot water station with heating module, preparation of fresh hot water, underfloor heating manifold and separate radiator connection in one ▪ Dimensions: ▪ PM: W 874 × H 1420–1510 × D 110 mm ▪ Smart Connect: W 874 × H 1501–1591 × D 110
	**TacoTherm Dual Piko Smart Connect** Combi unit	25 l/min** Up to 12 heating circuits	
	**TacoTherm Dual Piko Smart Hybrid** Combi unit	19 l/min** Up to 12 heating circuits	▪ Electronically controlled ▪ Electric hot water reheating ▪ Ready for integration into building automation ▪ Dimensions: 874 × 1621 + 90 × 110 mm
	**TacoTherm Fresh Piko PM** Domestic hot water module	22 l/min*	▪ Compact, connection-ready fresh hot water station ▪ Proportional flow-controlled or electronically controlled with options such as standby module and anti-scald protection for increased comfort ▪ Dimensions: ▪ PM: W 874 × H 772–892 × D 110 mm ▪ Smart Connect: W 874 × H 965 – 1055 × D 110 mm
	**TacoTherm Fresh Piko Smart Connect** Domestic hot water module	25 l/min**	
	**TacoSys Piko** Heating module	Up to 10 heating circuits	▪ Compact, connection-ready heating module ▪ Fixed value or weather-compensated control ▪ Dimensions: W 874 × H 772-892 × D 110 mm

TacoTherm Dual Nano (slimline design: 450 - 750 mm in width)

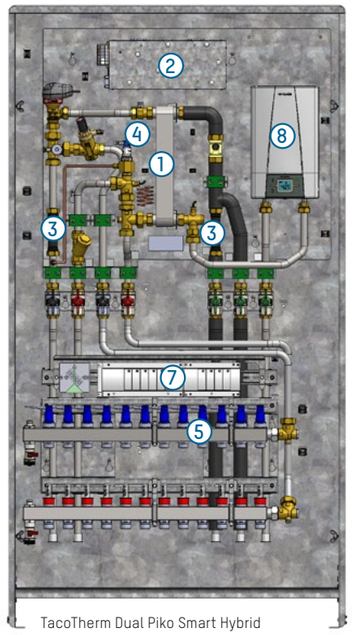
Unit/type		Nominal draw-off/ heating circuits	Design
	**TacoTherm Dual Nano** Combi unit	20 l/min* Up to 10 heating circuits	▪ Compact, combined and connection-ready HIU ▪ Domestic hot water station with heating module, DHW heating, underfloor heating manifold and separate radiator connection ▪ Dimensions: 8 heating circuits: W 523 × H 1233-1323 × D 153 mm 9-10 heating circuits: W 750 × H 1233-1323 × D 153 mm
	**TacoTherm Fresh Nano2** Domestic hot water module	20 l/min*	▪ Connection-ready domestic hot water station ▪ Suitable for replacing wall mounted gas boilers ▪ Proportional flow control with options such as a standby module and scalding protection for greater convenience ▪ Dimensions: W 450 × H 635 × D 156 mm

* Performance data at primary = flow 70 °C / secondary = DHW 45 °C; Δp ≥ 300 mbar
** Performance data at primary = flow 55 °C / secondary = DHW 45 °C; Δp ≥ 300 mbar

THE MOST IMPORTANT COMPONENTS IN A HEAT INTERFACE UNIT



TacoTherm Dual Piko PM



TacoTherm Dual Piko Smart Hybrid

① Plate heat exchanger
The heat exchanger acts as the interface between the heating water and DHW circuits. The connection between the primary and secondary circuits ensures efficient heat transfer to the DHW. Both copper and nickel brazed stainless steel plate heat exchangers are available, depending on the water values.

② DHW temperature control
The energy required to heat the DHW is controlled mechanically using a proportional flow controller or electronically.

③ Meter mounting boards
Fittings are provided in the pipework system for installing DHW and cold water meters.

④ Standby module
A standby module is used on the primary side of the unit for high convenience and fast DHW availability.

⑤ Area heating distributor with integrated actuator
Connection point for area heating systems or individual radiators in a low temperature system. The TacoDrive actuator valve and TopMeter Plus balancing valve are already pre-assembled.
Both fixed value and weather-compensated control of the required flow temperatures is possible.

⑥ Mixing station
For use in a 2-pipe system in fixed value and weather-compensated designs.

⑦ Electrical junction box
The interface between the integrated actuators and the room thermostats of the individual room control system in the apartment.

⑧ Electrical reheating
Electric instantaneous water heater for additional reheating of drinking water.

CONVENIENT HANDLING FOR USERS, DESIGN ENGINEERS AND INSTALLERS

At the «Waldzauber» residential complex, the focus is firmly on state of the art technology – right down to the decentralised heat interface unit...

Benefits of the HIU for the building's users
The TacoTherm Dual Piko modular heat interface unit from Taconova controls heat distribution and DHW heating within the apartment. A major advantage of this decentralised heat transfer is that the DHW does not need to be heated in a central water heater and distributed from there to the individual residential units. Instead, it is heated at the point of use only as needed and to an individually regulated outlet temperature – all while maintaining the highest hygiene standards.

Problems with legionella bacteria can be virtually eliminated thanks to the decentralised provision of hot water using the instantaneous water heating principle.

By installing water and heat meters, the unit also provides all the necessary data for separate billing to each apartment, thereby offering the user maximum cost transparency.

The units control the underfloor heating system of each apartment and are equipped as standard with an unregulated high temperature outlet which offers the additional option of connecting a bathroom radiator.

Small footprint, easy installation
When it comes to installation, the TacoTherm Dual Piko offers huge benefits thanks to its slimline proportions and free choice of layout for the individual modules.

«The shallow installation depth of the Taconova product was absolutely key here,» explained Peter Wagner (Managing Director of Design and Construction Site Support, ST Sanitär Team GmbH) when describing the installation work.
«The fact that every Taconova module comes prewired and ready to install has significantly reduced the amount of work required.»

Whilst centralised systems transferring heat to individual apartment require four pipes (heating flow, heating return, DHW and DHW circulation), a heat distribution system with heat interface unit uses just two distribution pipes per apartment. These can be installed centrally and, thanks to minimal heat losses, contribute to the energy cost efficiency of the building as a whole.

As a result, not only is it possible to reduce installation materials and installation work, but also to simplify future maintenance of pipes and connections.

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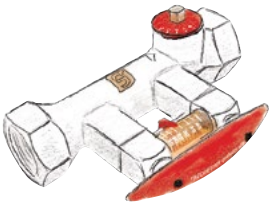
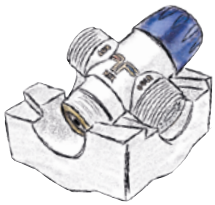


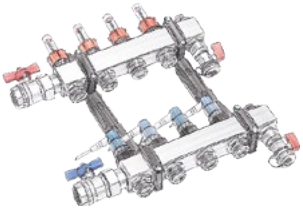
HYDRONIC BALANCING

Increased energy efficiency
Heat distribution for any system, matched to demand.



VALVES AND ACCESSORIES

Compact aids
For safety, greater effectiveness and convenience.

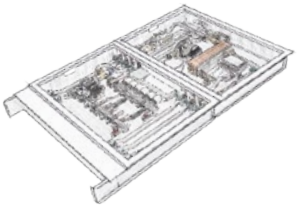


AREA HEATING SYSTEMS

Perfect interaction
For a pleasant, individual room climate.

PUMP TECHNOLOGY

Upwardly efficient
For low operating costs and greater energy efficiency.



SYSTEM TECHNOLOGY

Intelligent units
For reliable operation, reduced maintenance and optimised energy costs.

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Further information
Find the latest news, product information, animations, datasheets and much more on **taconova.com**

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